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MISSISSIPPI SOUND REMOTE SENSING STUDY
SEPTEMBER 28, 1972

SURFACE MEASUREMENTS

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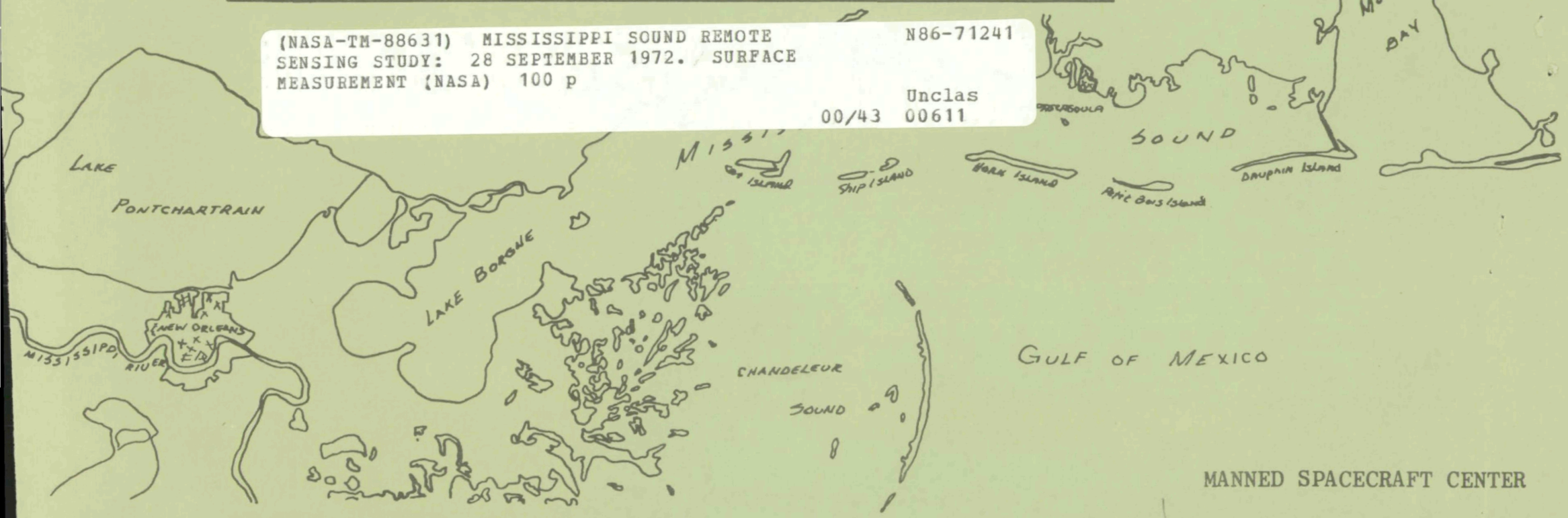

MANNED SPACECRAFT CENTER

MISSISSIPPI SOUND VIII REMOTE SENSING STUDY
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PARTICIPANTS

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Gulf Coast Research Laboratory
National Marine Fisheries Service
U. S. Corps of Engineers-Mobile, Alabama

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LIST OF MAPS
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2. Mississippi Sound VIII Surface Water Temperature Contour Map, September 28, 1972.

3. Mississippi Sound VIII Salinity Contour Map, September 28, 1972.

4. Mississippi Sound VIII Chlorophyll Contour Map, September 28, 1972.

5. Mississippi Sound VIII Secchi Contour Map, September 28, 1972.

INTRODUCTION

As a part of the remote sensing program of the NASA Earth Resources Laboratory (ERL), a study of the Mississippi Sound was initiated in early 1971. The first phase of this study consisted of four overflights by NASA aircraft with supporting surface measurements. Reports summarizing the surface data collected for each of the overflights - July 22, 1971, November 10, 1971, January 26, 1972, and May 2 and 4, 1972 - have been published by the NASA Earth Resources Laboratory.

The study entered a second phase in participation with the National Marine Fisheries Service (NMFS) ERTS-A experiment #240[1] on July 6, 1972 in which additional scientific objectives have been included. One of the objectives is the assessment of the influences of physical parameters on the menhaden fishery within Mississippi Sound and in nearby waters of the Gulf of Mexico and how effectively these parameters may be measured remotely. The other is the inclusion of data obtained from the ERTS-A satellite in the evaluation of remote measurements. In addition to the direct support of the ERTS-A experiment, the ERL will also support an ongoing evaluation and demonstration of remote sensing techniques in the Mississippi Sound area emphasizing the measurement of a set of basic oceanographic parameters in coastal waters. The major parameters of interest are salinity, temperature, chlorophyll, and turbidity.

Because of the interest in the distribution of the menhaden fisheries throughout the Mississippi Sound, the area was divided into five areas (A-E). Each of these areas contained 6 equally spaced N-S flight lines extending across the Sound. Depending on the location of the fishing fleet a denser set of surface measurements was planned to be made in one of these areas than the other four. Lines E1, E2, E3, D4, D5, and D6 were chosen for this experiment. (See flight line and station map in back pocket.)

This report includes the surface measurements made in support of the fourth "main day" overflight of the second phase of the study. The mission took place on September 28, 1972.

The NASA NP3A aircraft with RS-14 infrared scanner, precision radiation thermometer, and KA62 and RC8 cameras was used in collecting the remotely sensed data. In addition, a light aircraft leased by the NASA Earth Resources Laboratory collected infrared scanner, photographic,

[1]Project Plan - ERTS-A Experiment dated July 21, 1972.

and visible spectra radiometric measurements of the sea surface. A second light aircraft leased by the National Marine Fisheries Service collected color photography. The remotely sensed data collected will be reported separately.

Surface measurements were made and water samples collected by personnel from the list of participants shown on the cover page. These agencies made available both personnel and equipment.

Lines 3, 4, and 5 were flown during the evening of September 28 as well as during the daylight hours on that day. A special set of night surface temperature measurements was made (station coordinates are listed in Table 2) in support of this overflight. Night temperature measurements are included in Table 4. Day surface measurements and sample analyses are included in Table 3.

Salinity and chlorophyll measurements were made by Lockheed Electronics Company personnel, support contractor to the Earth Resources Laboratory. Messrs. Jerry Brashier, James Halbach and Arthur Ralph Mason, Jr. of Lockheed Electronics Company compiled this report. The contour maps were drawn by Mr. M. D. Furry.

A complete list of publications reporting on previous experiments and other phases of this study may be found in Appendix I.

Field Procedures

Field measurements and samples were taken at one-hundred and fifty-four stations in the Mississippi Sound on September 28, 1972 as ground truth for the mission (Table 1).

Each boat was assigned a certain section with a given number of stations to occupy in a serial manner. However, some of these stations were occupied twice during the exercise to allow some assessment of changes which took place during the day.

Surface water temperature measurements were made with bucket thermometers. Salinity measurements were made at a few stations with the RS5-3 salinometer and are listed in Table 3.

Air temperature measurements were taken with mercury bulb thermometers as near the water surface as possible on the shady side of the boat.

Relative humidity values were determined with sling psychrometers.

Wind direction, wind speed, and sea state observations were in most cases estimated.

Color was determined with a Forel-Ule color comparator.

Temperatures were measured at a few stations with a precision radiation thermometer(PRT-5) (Table 3). A description of this instrument is found in Appendix II.

The purpose of using the PRT-5 was to obtain data to verify an ERL atmospheric correction technique under development.[1]

The following operation procedure was used for the PRT-5: several minutes were allowed for warm-up, medium temperature scale was selected (10^{o} - 45^{o}C), response 3.0 Hz was selected, optic cover was removed, sensor head was aimed at target, and temperature was read directly from instrument dial.

Water transparency was determined with secchi disks.

Surface current speed and direction were measured at most stations. A neutrally buoyant float with minimum freeboard (partially filled plastic bottle) was attached to a 75 foot cord. The time required for the float to reach the end of the cord after being dropped from the anchored boat was measured. A velocity was computed by knowing the length of the cord and the elapsed time.

The time (CDT) of flyover for the NP3A aircraft on September 28, 1972 for each flight line was:

Line 6	0928	0936	Line 5	0953	1011
Line 7	0938	0947	Line 4	1020	1039

[1] Boudreau, R. D. A radiation model for calculating atmospheric corrections to remotely sensed infrared measurements. NASA Earth Resources Laboratory at Mississippi Test Facility, April 1972.

ield Procedures (Cont'd)

Line 3	1042	1051	Line 3	1238	1300
Line E2	1124	1131	Line 2	1306	1328
Line E3	1134	1141	Line 1	1333	1356
Line E1	1143	1150	Line 5	2015	2033
Line D6	1153	1200	Line 4	2036	2054
Line D5	1205	1213	Line 3	2059	2121
Line D4	1214	1222			

National Weather Service meteorological observations are epresented by Figures 1 and 2. Data from a radiosonde at Mississippi est Facility on 28 September 1972 is shown in Figure 3.

Tide measurements recorded by the U. S. Corps of Engineers, obile, Alabama are shown in Figures 4 and 5.

Data computations and listings for this mission were made ith the Univac 1108 (Tables 3 and 4).

Below is a nomenclature list.

olumn	Abbreviation	Name
1	STAT NUMB	Station number
2	TIME CDT	Time Central Daylight
3	WATER TEMP DEG C	Water temperature degrees centigrade
4	CHLO PH A MG/M3	Chlorophyll A milligrams per cubic meter
5	SALNTY PTS/K	Salinity parts per thousand
6	AIR TEMP DG C	Air temperature degrees centigrade
7	RELAT HUMDY PERCT	Relative humidity percent
8	WIND DIR DEG	Wind direction degrees
9	WIND SPD KN	Wind speed knots
10	SECH VISB FT	Secchi visibility feet
11	SEA STAT FT	Sea state feet
12	CURRT KN	Current knots
13	CUR DIR DEG	Current direction degrees
14	WATER DEPTH FT	Water depth feet
15	BOTL NO.	Bottle number
16	FU COL	Forel-Ule color
15	PRT-5 TEMP DEG C	PRT-5 temperature degrees centigrade
16	RS5-3 SAL	RS5-3 salinity parts per thousand

Printout of asterisks represents no available data.

MATERIALS AND METHODS

Laboratory Procedures

Water samples were taken at each station in pint polypropylene bottles for chlorophyll and salinity analyses.

Salinities were run with a Beckman Model RS-7B induction salinometer. Standard (35 °/oo) sea water was used as reference, and salinities were determined from the conductivity ratio of the sample to that of the standard. Temperature and instrument drift corrections were made according to the Beckman Manual.

The technique used for determination of chlorophyll, which gives a measure of the phytoplankton present, was essentially that proposed by SCOR-UNESCO working group 17 in Determination of Photosynthetic Pigments in Sea-Water, UNESCO, Paris 1969. Each water sample for chlorophyll analysis was filtered through a millipore 0.45 micron acetate filter. The filters and their residue were stored at -15°C over activated silica gel. Each filter and its residue was ground in a teflon tissue grinder. Ninety percent acetone was used as the extracting agent. The acetone homogenates were stored in the dark for ten minutes, then centrifuged at 2000 g for approximately one hour instead of the recommended ten minutes because the extract was too turbid. The volume of each extract was recorded and the absorption spectrum of the chlorophyll extract measured against a blank acetate filter dissolved in 90% acetone. The measurements were made on a Cary 17 spectrophotometer.

The absorption spectra were indexed at 750, 663, 645 and 630 mμ. The absorption at 663, 645 and 630 mμ was corrected by comparison with the absorption of the "reference blank" at 750 mμ. These corrected values are used in the following formula to determine chlorophyll A.

$$\text{chl } A = (11.64\, x_{e_{663}} - 2.16\, x_{e_{645}} + 0.10\, x_{e_{630}}) \times \frac{\text{ext (ml)}}{\text{vol (l)}} \times \frac{1}{\text{absorption cell light path (cm)}}$$

where e_{663} = absorption at 663 mμ

e_{645} = absorption at 645 mμ

e_{630} = absorption at 630 mμ

ext = extract volume

vol = volume of sample

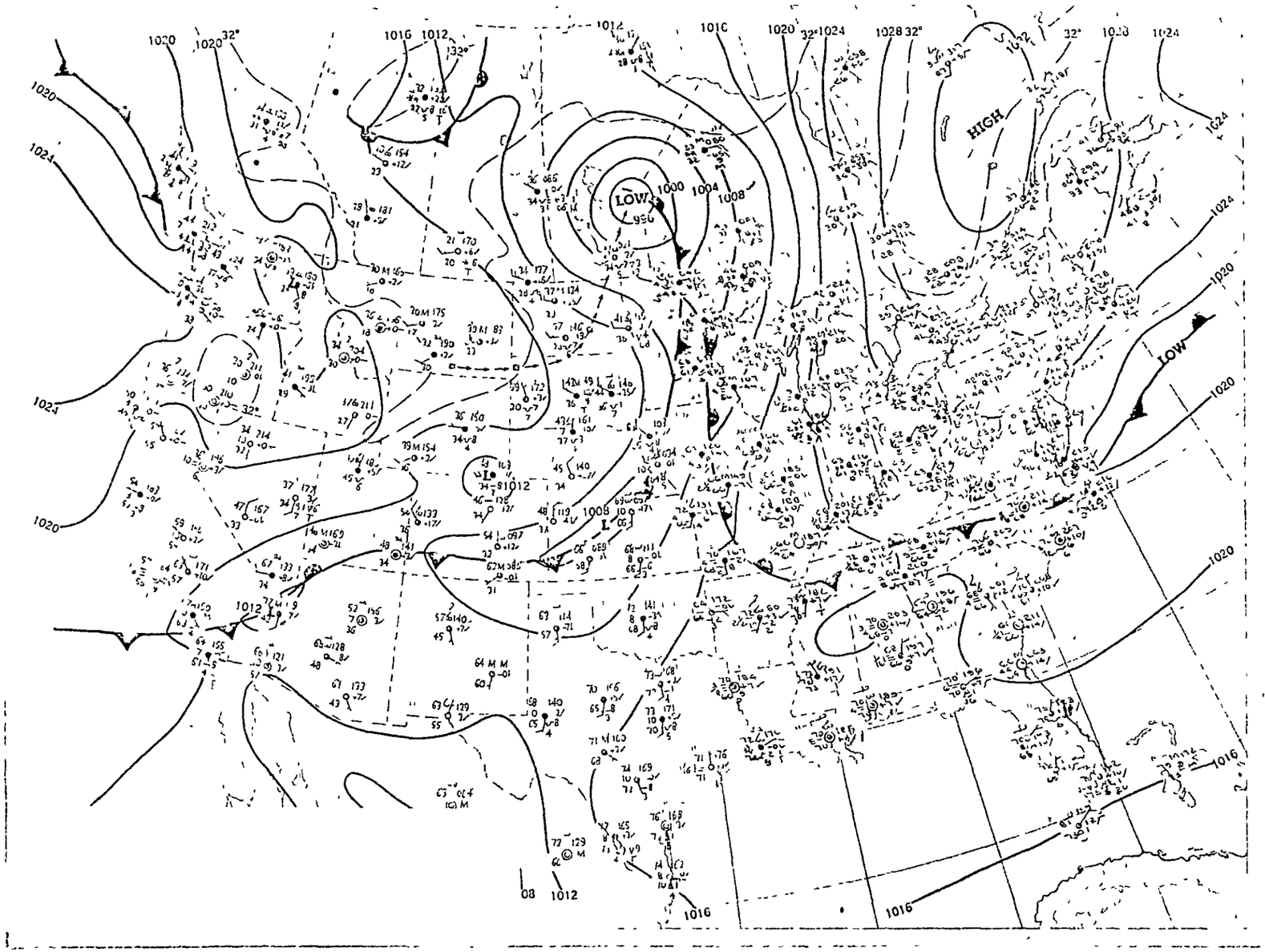
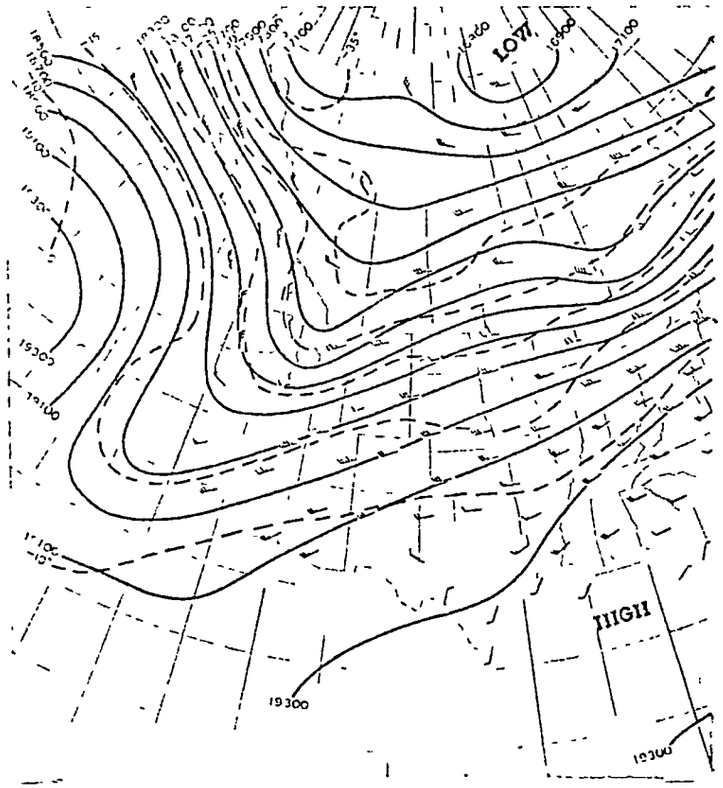
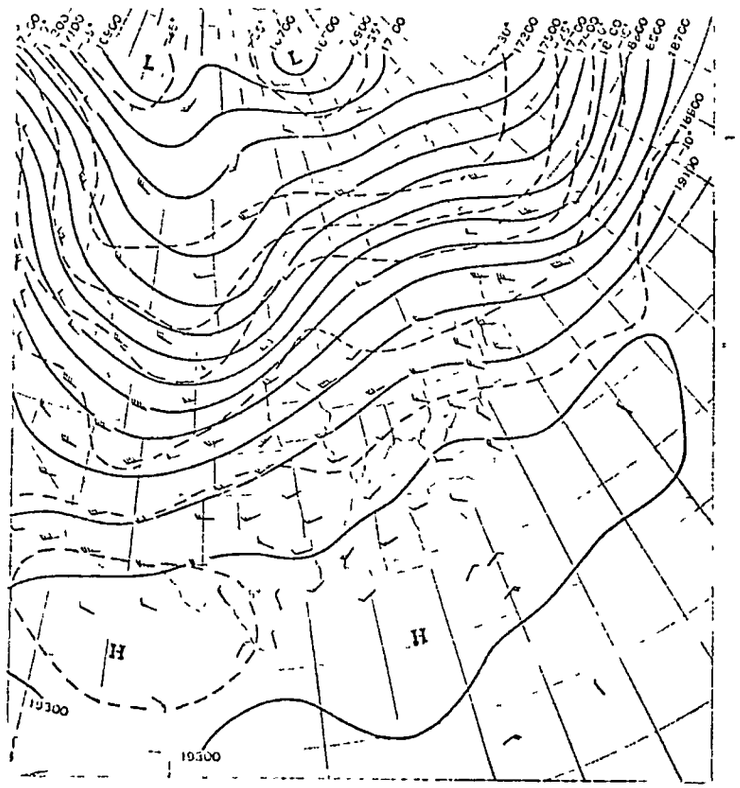


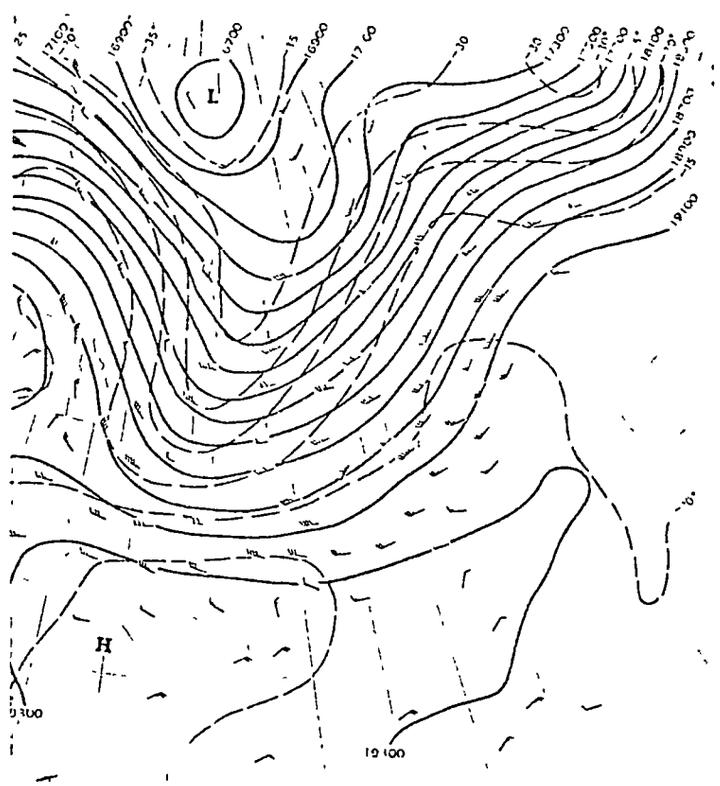
Figure 1. National Weather Service surface weather map and station weather at 1200 GMT Thursday, 28 September 1972.



1200 GMT 27 September 1972



1200 GMT 28 September 1972



1200 GMT 29 September 1972

Figure 2. National Weather Service
500-millibar height contours.

PRESSURE	TEMP.	DEW POINT	HEIGHT
MILLIBARS	CENTIGRADE		METERS
1019.0	26.0	24.2	0
1011.0	24.4	22.7	69
997.0	24.6	22.8	192
995.2	24.5	22.7	207
969.7	22.8	20.9	436
963.0	22.3	20.4	497
945.6	21.8	16.0	655
939.0	21.6	14.3	716
921.2	21.1	12.5	881
897.0	20.3	9.9	1112
873.5	19.5	7.4	1342
872.0	19.5	7.2	1357
849.0	18.1	5.2	1586
829.0	17.0	3.5	1790
825.0	16.4	4.1	1831
816.0	15.1	5.6	1925
803.3	14.4	3.9	2056
789.0	13.6	1.9	2209
783.1	13.6	.5	2272
773.0	13.6	-1.8	2382
762.3	12.8	-2.5	2498
741.3	11.1	-3.9	2730
720.9	9.5	-5.3	2962
701.1	7.9	-6.6	3194
696.0	7.5	-7.0	3256
682.1	6.3	-8.3	3420
663.7	4.7	-10.0	3644

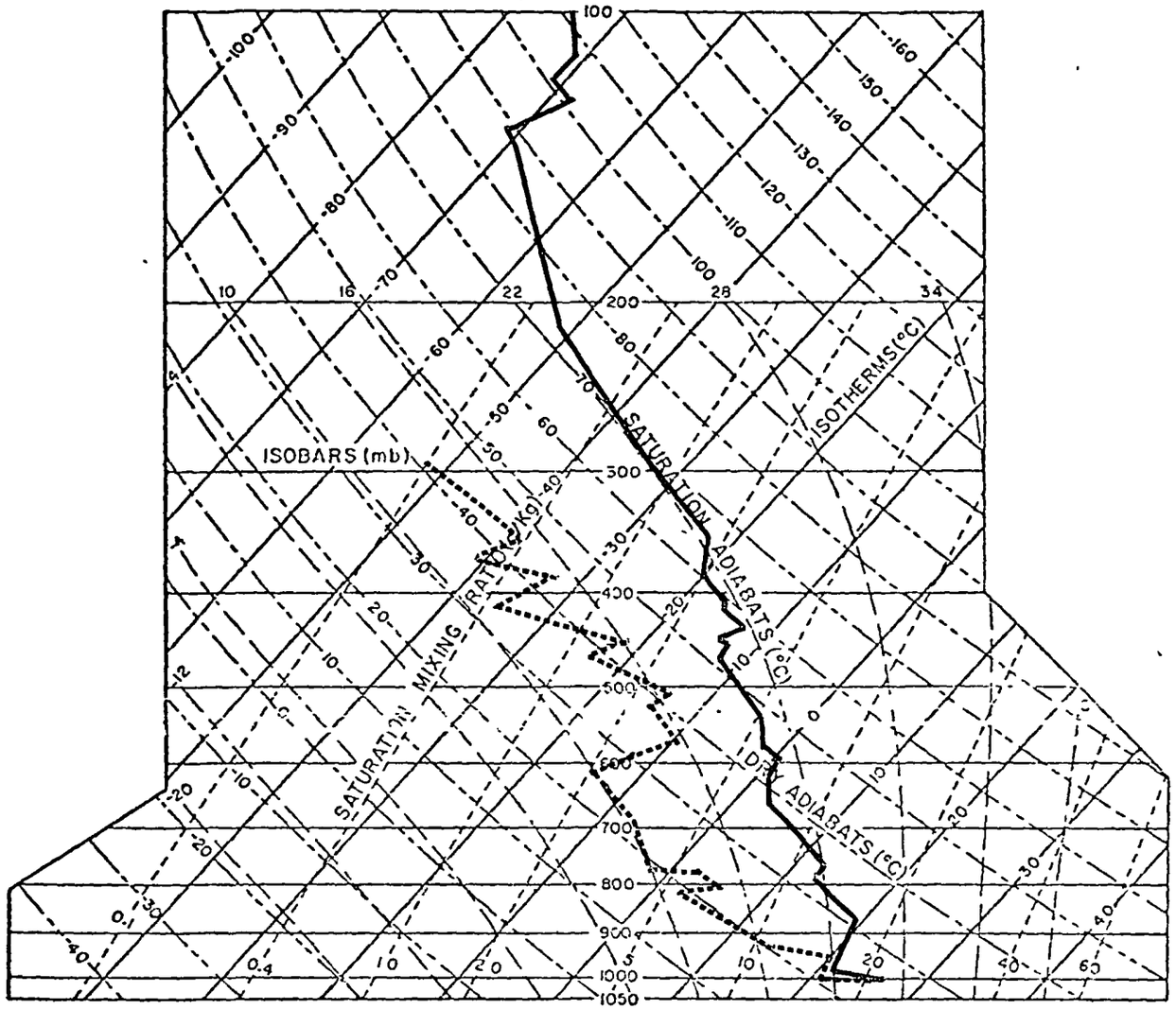
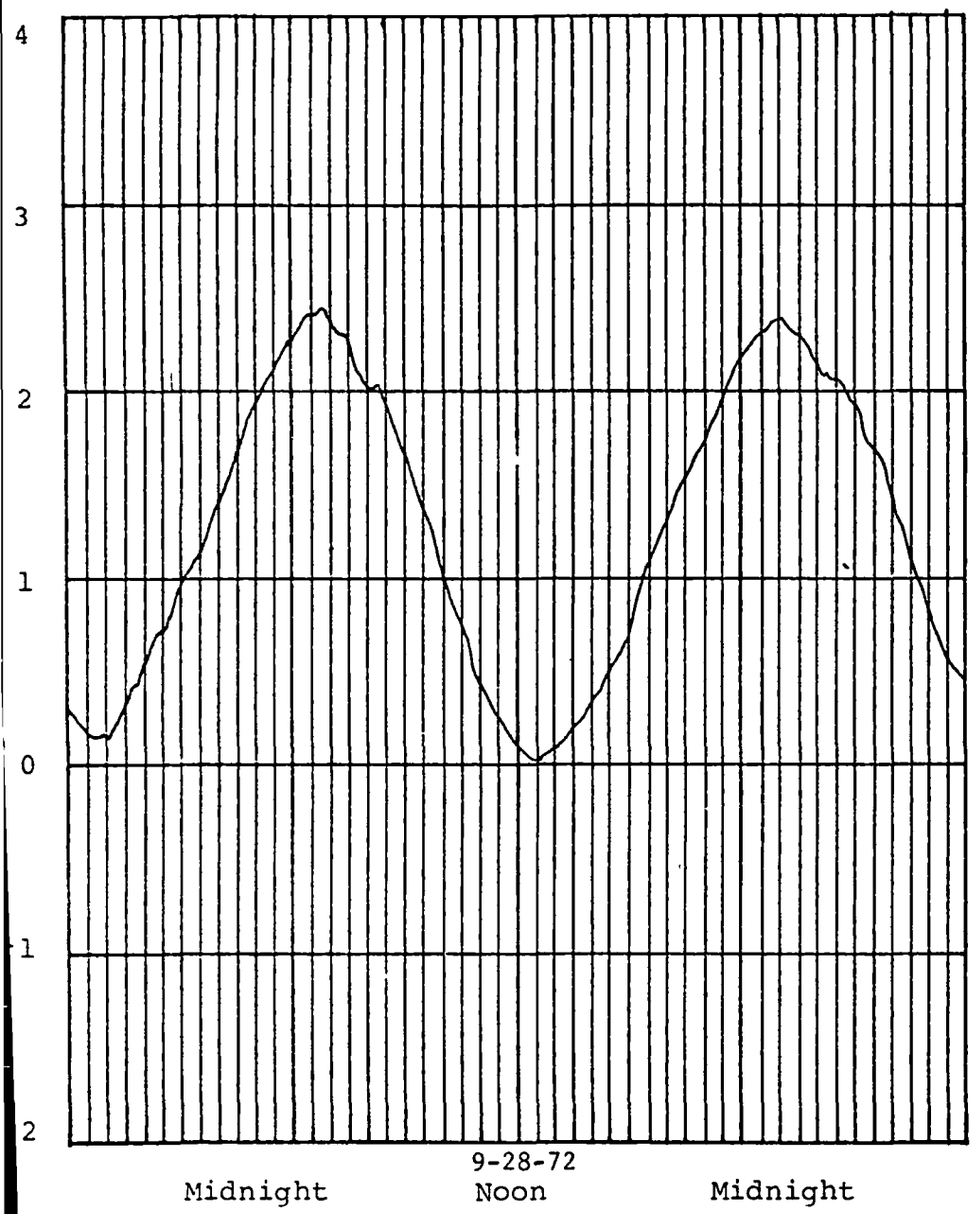
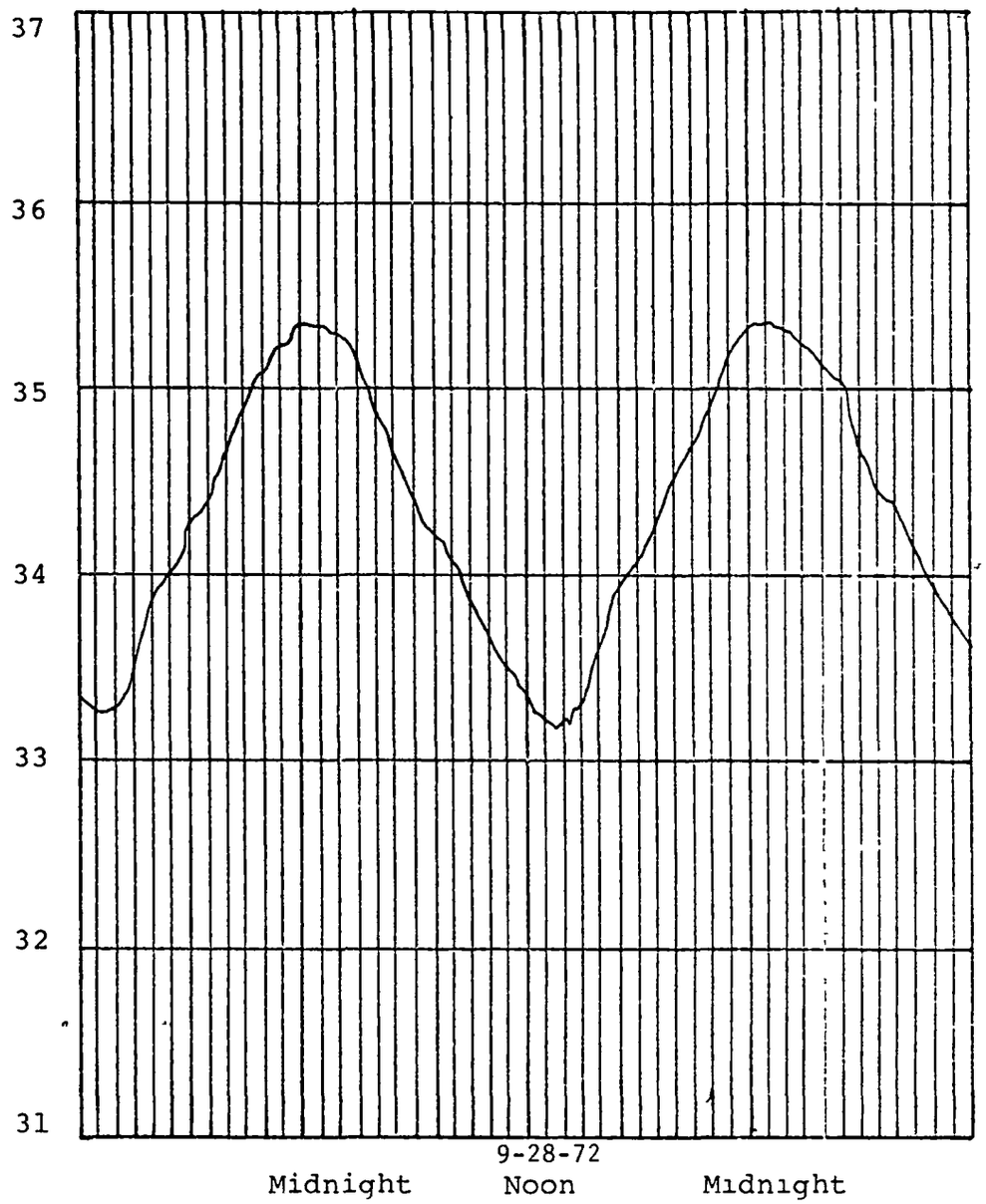


Figure 3. Machine processed radiosonde data available from Mississippi Test Facility, 1409 GMT, 28 September 1972.



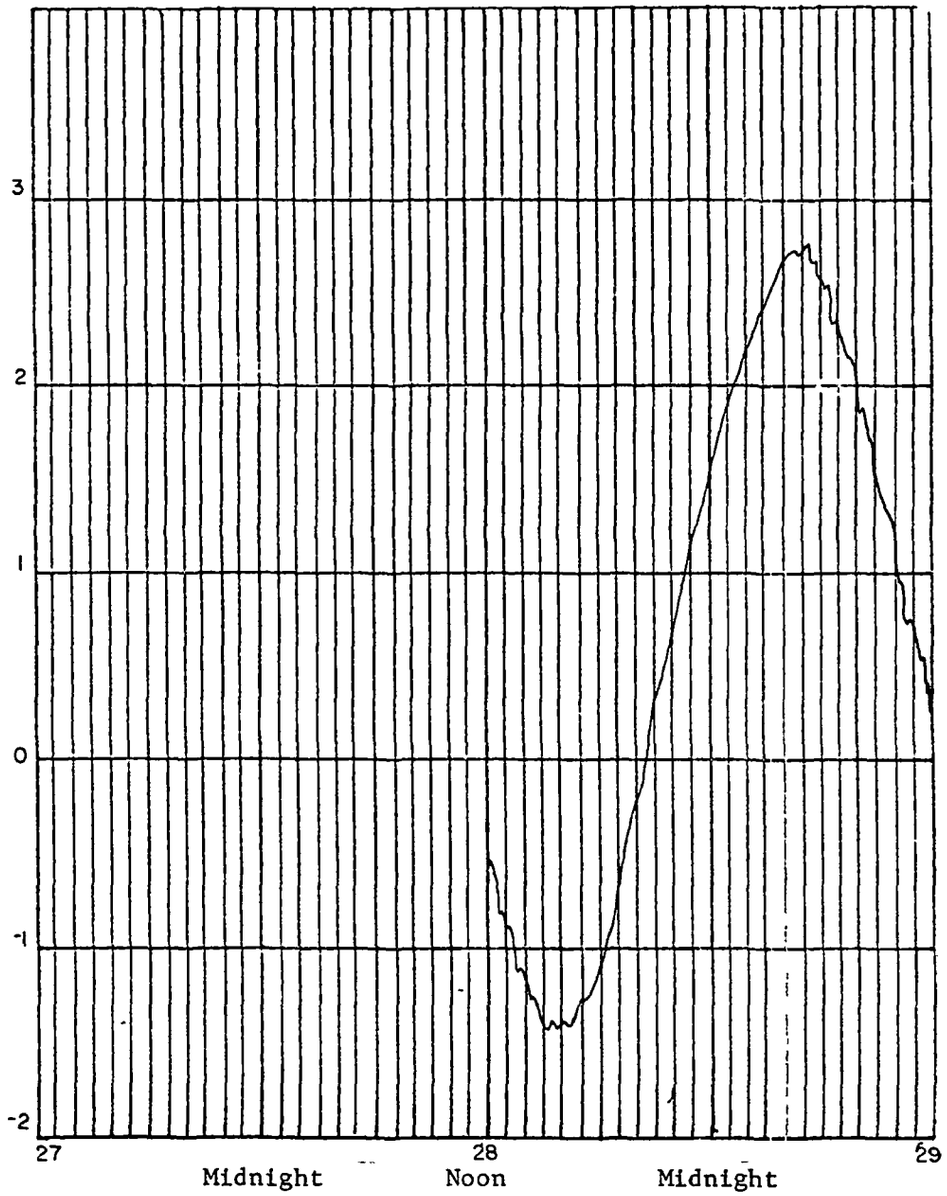
DAUPHIN ISLAND MARINE LAB
GAGE ZERO
0.23' MSL



BONSECOUR, ALA.
GAGF ZERO
33.53' MSL

Figure 4. Tides at Dauphin Island Marine Lab and Bonsecour, Ala. 27, 28, 29 September 1972.

Source: Mobile Corps of Engineers



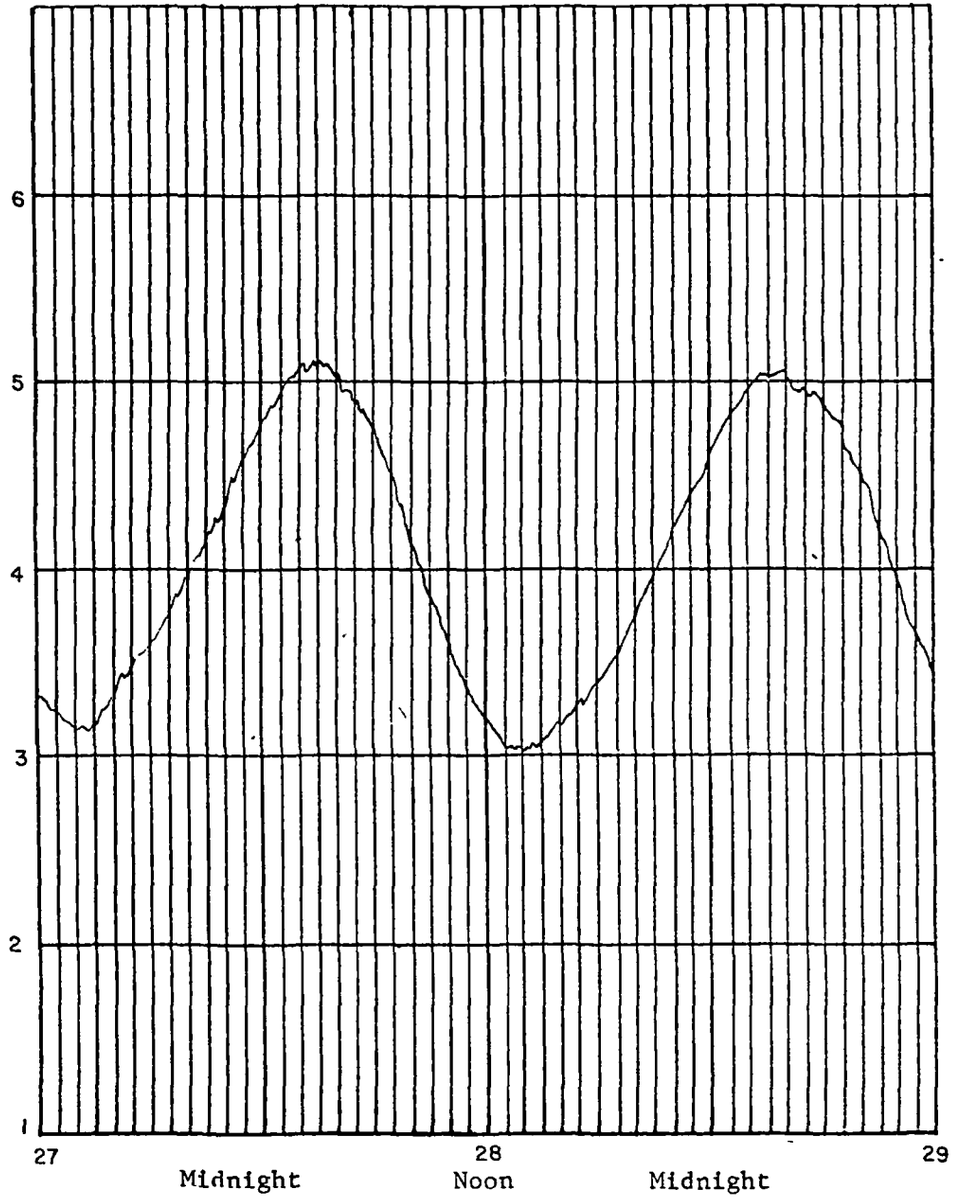


Figure 5. Tides at Mobile, Ala. and Cedar Point, Ala. 28 September 1972.

Source: Mobile Corps of Engineers

Table 1

Station locations.

Station	Location		Station	Location		Station	Location	
A-1	30°16'36"	89°21'014"	A-21	30°07'48"	89°09'37"	B-16	30°12'01"	89°00'26"
A-2	30°12'27"	89°21'04"	A-22	30°11'27"	89°09'37"	B-17	30°15'01"	89°00'26"
A-3	30°09'00"	89°21'04"	A-23	30°14'24"	89°09'37"	B-18	30°18'01"	89°00'26"
A-4	30°05'12"	89°21'04"	A-24	30°17'02"	89°09'37"	B-19	30°21'00"	89°00'26"
A-5	30°06'27"	89°18'48"	A-25	30°20'00"	89°09'37"	B-20	30°21'00"	88°57'59"
A-6	30°09'00"	89°18'48"	B-1	30°20'00"	89°07'19	B-21	30°18'01"	88°57'59"
A-7	30°12'39"	89°18'48"	B-2	30°17'02"	89°07'19"	B-22	30°15'01"	88°57'59"
A-8	30°15'27"	89°18'48"	B-3	30°14'30"	89°07'19"	B-23	30°04'30"	88°55'44"
A-9	30°17'30"	89°16'32"	B-4	30°04'30"	89°04'56"	B-24	30°07'48"	88°55'44"
A-10	30°14'51"	89°16'32"	B-5	30°07'48"	89°04'56"	B-25	30°12'01"	88°55'44"
A-11	30°11'51"	89°16'32"	B-6	30°11'01"	89°04'56"	B-26	30°15'01"	88°55'44"
A-12	30°08'51"	89°16'32"	B-7	30°14'37"	89°04'56"	B-27	30°18'01"	88°55'44"
A-13	30°09'18"	89°14'09"	B-8	30°17'02"	89°04'56"	B-28	30°21'00"	88°55'44"
A-14	30°11'24"	89°14'09"	B-9	30°19'30"	89°04'56"	B-29	30°07'45"	89°02'41"
A-15	30°14'41"	89°14'09"	B-10	30°21'00"	89°02'41"	B-30	30°04'21"	89°02'41"
A-16	30°17'52"	89°14'09"	B-11	30°18'18"	89°02'41"	C-1	30°21'00"	88°53'27"
A-17	30°17'52"	89°11'54"	B-12	30°15'39"	89°02'41"	C-2	30°18'01"	88°53'27"
A-18	30°14'51"	89°11'54"	B-13	30°13'45"	89°02'41"	C-3	30°15'01"	88°53'27"
A-19	30°12'24"	89°11'54"	B-14	30°14'30"	89°00'26"	C-4	30°04'30"	88°51'12"
A-20	30°04'30"	89°09'37"	B-15	30°07'48"	89°00'26"	C-5	30°08'45"	88°51'12"

Table 1.

Station locations.

Station	Location		Station	Location		Station	Location	
C-6	30°13'01"	88°51'12"	C-25	30°15'29"	88°41'57"	D-14	30°08'45"	88°32'40"
C-7	30°15'24"	88°51'12"	C-26	30°18'01"	88°41'57"	D-15	30°12'30"	88°32'40"
C-8	30°18'01"	88°51'12"	C-27	30°20'00"	88°41'57"	D-19	30°17'54"	88°30'24"
C-9	30°21'00"	88°51'12"	C-28	30°14'09"	88°48'46"	D-20	30°16'12"	88°30'24"
C-10	30°19'36"	88°48'46"	C-29	30°11'00"	88°48'46"	D-21	30°13'14"	88°30'24"
C-11	30°18'01"	88°48'46"	C-30	30°04'30"	88°48'46"	D-22	30°04'30"	88°27'57"
C-12	30°15'01"	88°48'46"	D-1	30°20'00"	88°39'30"	D-23	30°07'48"	88°27'57"
C-13	30°04'30"	88°46'29"	D-2	30°17'00"	88°30'30"	D-24	30°11'28"	88°27'57"
C-14	30°08'46"	88°46'29"	D-3	30°14'36"	88°30'30"	D-25	30°12'43"	88°27'57"
C-15	30°13'01"	88°46'29"	D-4	30°04'30"	88°37'13"	D-26	30°15'43"	88°27'57"
C-16	30°15'00"	88°46'29"	D-5	30°08'45"	88°37'13"	D-27	30°18'42"	88°27'57"
C-17	30°18'01"	88°46'29"	D-6	30°13'01"	88°37'13"	D-28	30°12'00"	88°34'57"
C-18	30°21'00"	88°46'29"	D-7	30°15'04"	88°37'13"	D-29	30°08'45"	88°34'57"
C-19	30°18'30"	88°44'13"	D-8	30°17'00"	88°37'13"	D-30	30°04'30"	88°34'57"
C-20	30°17'12"	88°44'13"	D-9	30°20'00"	88°37'13"	E-1	30°18'42"	88°25'41"
C-21	30°15'18"	88°44'13"	D-10	30°19'42"	88°34'57"	E-2	30°15'43"	88°25'41"
C-22	30°04'30"	88°41'57"	D-11	30°16'43"	88°34'57"	E-3	30°12'43"	88°25'41"
C-23	30°08'46"	88°41'57"	D-12	30°13'42"	88°34'57"	E-4	30°04'30"	88°23'25"
C-24	30°13'01"	88°41'57"	D-13	30°04'30"	88°32'40"	E-5	30°07'48"	88°23'25"

Table 1.
Station locations.

Station	Location		Station	Location	
E-6	30°11'28"	88°23'25"	F-3	30°28'30"	88°03'30"
E-7	30°12'43"	88°23'25"	F-4	30°25'36"	88°03'30"
E-8	30°15'43"	88°23'25"	F-5	30°26'24"	87°56'40"
E-9	30°18'42"	88°23'25"	F-6	30°29'15"	87°56'40"
E-10	30°20'24"	88°21'09"	F-7	30°32'18"	87°56'40"
E-11	30°17'27"	88°21'09"	F-8	30°35'15"	87°56'40"
E-12	30°14'28"	88°21'09"	F-9	30°38'12"	87°56'40"
E-13	30°04'30"	88°18'54"	F-10	30°22'15"	88°03'30"
E-14	30°07'48"	88°18'54"	F-11	30°18'51"	88°03'30"
E-15	30°11'28"	88°18'54"	F-12	30°14'24"	88°03'30"
E-16	30°14'28"	88°18'54"	F-13	30°10'00"	88°03'30"
E-17	30°17'27"	88°18'54"	F-14	30°10'00"	87°56'42"
E-18	30°20'24"	88°18'54"	F-15	30°16'30"	87°56'42"
E-19	30°20'24"	88°16'39"	F-16	30°18'51"	87°56'42"
E-20	30°17'27"	88°16'39"	F-17	30°22'42"	87°56'42"
E-21	30°14'28"	88°16'39"			
E-24	30°15'54"	88°14'30"			
E-25	30°18'56"	88°14'30"			
E-27	30°04'30"	88°21'09"			
F-1	30°34'24"	88°03'30"			
F-2	30°31'27"	88°03'30"			

Table 2.

Coordinates for night line stations

N1 - N26 28 Sept. 1972.

N1	30°08.0'N	88°56.8'W	N14	30°15.0'N	89°00.0'W
N2	30°08.4'N	88°57.0'W	N15	30°15.4'N	89°00.3'W
N3	30°09.0'N	88°57.0'W	N16	30°15.8'N	89°00.7'W
N4	30°09.8'N	88°58.1'W	N17	30°16.2'N	89°01.0'W
N5	30°10.6'N	88°58.8'W	N18	30°16.6'N	89°01.3'W
N6	30°11.6'N	88°59.4'W	N19	30°17.0'N	89°01.5'W
N7	30°11.9'N	88°59.3'W	N20	30°17.4'N	89°01.9'W
N8	30°12.7'N	88°59.6'W	N21	30°17.8'N	89°02.1'W
N9	30°13.0'N	88°59.0'W	N22	30°18.4'N	89°02.7'W
N10	30°13.4'N	88°59.0'W	N23	30°18.9'W	89°03.1'W
N11	30°14.1'N	88°59.2'W	N24	30°19.4'N	89°03.6'W
N12	30°14.3'N	88°59.3'W	N25	30°20.0'N	89°04.0'W
N13	30°14.6'N	88°59.7'W	N26	30°20.6'N	89°04.6'W

Table 3.

28 September 1972

MISSISSIPPI SOUND 8

FIELD AND LABORATORY MEASUREMENTS

STAT UMB	TIME CUT	WATER TEMP DEG C	CHLO PH A MG/M3	SALNTY PTS/K	AIR TEMP DG C	RELAT HUMDY PERCT	WIND DIR DEG	WIND SPD KN	SECH VISB FT	SEA STAT FT	CURRT KN	CUR DIR DEG	WATER DEPTH FT	ROTL NO.	FU COL	PRT-5 TEMP DEG C	RS5-3 SAL
1	900	29.1	1.4	23.91	26.5	80.7	120	2	5.5	.1	.21	45	8.0	1	16	****	****
2	940	29.0	4.1	23.58	28.5	67.0	120	1	5.5	*****	.42	45	10.0	7	15	****	****
3	1015	29.4	4.7	29.70	26.2	70.3	120	1	5.0	*****	.44	40	10.0	8	15	****	****
4	1045	29.4	5.2	27.54	27.6	64.4	****	****	5.5	*****	.44	35	8.0	9	14	****	****
5	1115	29.2	5.7	27.39	27.5	73.2	60	3	6.0	.1	.59	40	10.0	2	14	****	****
5	1555	31.0	5.3	29.09	26.4	73.8	120	****	5.0	1.0	.59	25	8.0	5	15	****	****
6	1143	29.7	5.5	28.04	27.1	73.5	60	1	5.5	.1	.63	30	10.0	13	14	****	****
6	1620	31.1	5.3	22.48	26.2	70.6	120	6	5.5	1.5	.56	20	10.0	4	15	****	****
7	1215	29.8	5.5	23.50	27.1	73.5	60	2	5.0	.1	.63	70	10.0	15	14	****	****
7	1650	30.5	4.5	24.33	26.5	70.9	120	6	5.5	1.2	.44	25	8.0	6	15	****	****
8	1245	30.4	5.0	23.20	27.2	74.0	120	4	5.0	*****	.39	60	8.0	3	12	****	****
8	1725	29.9	6.7	22.77	26.6	70.3	120	6	3.5	1.5	.11	25	8.0	12	14	****	****
9	1325	29.6	4.3	25.35	26.5	73.2	120	4	4.0	.1	.49	35	10.0	16	15	****	****
10	1428	29.5	5.6	25.29	27.2	77.0	120	3	5.0	.2	.56	30	12.0	10	14	****	****
11	1500	29.7	5.4	28.14	27.2	63.7	120	4	5.5	1.0	.56	15	15.0	14	14	****	****
12	1527	30.1	2.9	26.25	26.5	70.6	120	5	6.5	.7	.63	20	12.0	11	15	****	****

Table 3.

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MISSISSIPPI SOUND 8

FIELD AND LABORATORY MEASUREMENTS

STAT NUMB	TIME CDT	WATER TEMP DEG C	CHLO PH A MG/M3	SALNITY PTS/K	AIR TEMP DG C	RELAT HUMDY PERCT	WIND DIR DEG	WIND SPD KN	SECH VISB FT	SEA STAT FT	CURRT KN	CUR DIR DEG	WATER DEPTH FT	BOTL NO.	FU COL	PRT-5 TEMP DEG C	RS5-3 SAL
13	1038	29.6	4.9	30.17	30.0	67.3	120	5	4.0	.8	.22	82	13.5	31	**	****	****
14	1024	29.0	5.8	30.28	30.0	67.0	60	4	5.0	.8	.22	80	9.5	29	**	****	****
15	938	29.0	5.6	25.80	29.6	67.0	70	4	6.0	.6	.23	270	14.5	27	**	****	****
16	844	28.5	4.0	23.13	27.5	80.0	45	4	4.0	.6	.16	270	11.0	18	**	****	****
16	1615	29.6	7.6	23.13	29.5	*****	130	9	4.6	3.0	*****	***	10.0	18	**	****	****
17	1238	30.2	4.3	23.87	32.5	*****	150	5	5.5	.8	.28	230	13.5	26	**	****	****
17	1558	29.4	5.8	23.02	33.0	*****	130	8	4.6	2.5	.49	240	14.0	21	**	****	****
18	1130	29.2	5.9	27.00	31.5	*****	120	5	4.0	.2	.44	250	13.5	23	**	****	****
18	1540	29.9	5.4	24.96	33.1	*****	130	6	5.0	1.0	.30	240	12.5	22	**	****	****
19	1105	31.6	5.8	27.70	32.7	*****	90	5	5.0	.4	.37	270	20.5	25	**	****	****
19	1512	30.2	.6	27.28	30.0	*****	170	5	4.0	.4	.37	260	20.5	20	**	****	****
0	1000	28.5	4.5	27.77	30.5	73.8	130	2	3.5	*****	*****	***	6.0	145	18	****	****
1	930	28.5	4.3	29.17	30.0	76.8	130	1	8.0	*****	.40	140	8.0	144	12	****	****
2	900	28.5	4.3	29.09	31.5	76.6	130	1	6.0	*****	*****	***	40.0	143	10	****	****
2	1454	30.2	5.4	27.24	30.1	*****	150	5	5.0	.2	.43	260	20.5	17	**	****	****
3	1410	29.8	5.1	27.27	30.0	*****	135	5	2.0	.6	.45	270	11.0	28	**	****	****

Table 3.

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MISSISSIPPI SOUND 8

FIELD AND LABORATORY MEASUREMENTS

TAT UMB	TIME CDT	WATER TEMP DEG C	CHLO PH A MG/M3	SALNTY PTS/K	AIR TEMP DG C	RELAT HUMDY PERCT	WIND DIR DEG	WIND SPD KN	SECH VISB FT	SEA STAT FT	CURRT KN	CUR DIR DEG	WATER DEPTH FT	BOTL NO.	FU COL	PRT-5 TEMP DEG C	RS5-3 SAL
24	1340	30.6	3.3	24.13	31.0	*****	150	5	3.0	.5	.45	240	14.0	32	**	****	****
25	1310	30.4	9.0	25.42	34.1	*****	120	5	4.0	.5	.20	60	9.5	30	**	****	****
	900	27.8	5.7	24.91	27.2	80.3	80	2	3.0	.5	.35	85	8.0	33	12	****	****
2	940	28.1	6.0	25.97	29.1	73.2	80	2	5.5	.5	.30	85	12.0	34	12	****	****
3	1010	27.8	2.3	27.79	28.6	76.6	80	2	4.5	.5	.34	70	12.0	35	14	****	****
	1030	29.0	2.0	27.34	30.5	80.7	130	2	6.0	*****	*****	***	11.0	146	10	****	****
	1100	29.5	2.1	28.36	30.2	77.3	130	2	6.5	*****	*****	***	15.0	147	12	****	****
	1130	29.5	2.6	28.42	30.3	74.0	130	2	8.0	*****	*****	***	14.0	148	15	****	****
	1037	28.1	4.2	27.79	28.3	76.6	80	2	4.5	.5	.55	40	10.0	36	14	****	****
	1330	28.3	5.6	28.07	29.5	76.6	135	3	3.5	.5	.39	60	10.0	42	14	****	****
	1100	28.3	5.2	25.75	30.3	80.0	80	2	3.0	1.0	.52	90	14.0	37	14	****	****
	1400	28.9	*****	26.38	29.8	76.6	135	3	5.0	1.0	.63	100	14.0	43	15	****	****
	1130	28.3	4.8	25.44	30.5	80.3	120	2	3.5	1.0	.68	80	8.0	38	14	****	****
	1430	29.4	9.0	25.11	29.5	80.3	135	3	3.5	1.0	.59	70	8.0	44	15	****	****
0	1200	28.7	6.2	27.28	29.7	80.0	120	2	2.5	1.0	.34	30	8.0	39	14	****	****
	1230	29.0	6.3	27.11	29.5	80.0	120	2	4.5	1.0	.72	70	26.0	40	15	****	****

Table 3.

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MISSISSIPPI SOUND &
FIELD AND LABORATORY MEASUREMENTS

TIME CDT	WATER TEMP DEG C	CHLO PH A MG/M3	SALNTY PTS/K	AIR TEMP DG C	RELAT HUMDY PERCT	WIND DIR DEG	WIND SPD KN	SECH VISB FT	SEA STAT FT	CURRT KN	CUR DIR DEG	WATER DEPTH FT	BOTL NO.	FU COL	PRT-5 TEMP DEG C	RS5-3 SAL
1300	29.1	4.8	26.64	29.9	76.6	120	2	5.5	1.0	.97	110	15.0	41	14	****	****
1430	30.5	4.7	27.08	34.0	67.9	120	2	5.5	*****	*****	***	13.0	154	10	****	****
1300	30.0	1.8	28.37	30.5	73.8	130	2	9.5	*****	*****	***	17.0	151	10	****	****
1230	30.0	2.9	32.39	30.2	77.0	130	2	10.0	*****	*****	***	22.0	150	10	****	****
1200	29.5	5.2	28.63	30.3	73.8	130	2	6.0	*****	*****	***	20.0	149	12	****	****
1000	28.8	4.9	27.67	30.6	84.0	100	5	5.0	.4	.25	150	18.0	50	14	****	****
930	28.8	3.7	26.49	31.1	84.2	100	5	6.0	.3	.30	130	16.0	52	14	****	****
900	28.5	9.4	27.22	30.5	84.0	80	5	4.5	.3	.29	90	13.0	47	15	****	****
1130	29.4	10.2	27.16	33.0	74.3	85	5	5.5	.4	.27	130	13.0	55	15	****	****
1430	30.4	8.9	28.06	33.4	*****	110	7	5.4	.5	*****	***	12.0	57	16	****	****
1100	28.8	3.6	27.53	33.4	77.5	90	5	6.0	.3	.28	180	14.0	53	12	****	****
1400	29.9	2.8	27.21	33.4	84.7	120	7	6.0	.5	.21	190	14.0	58	16	****	****
1030	28.6	4.0	28.17	31.9	80.7	90	5	6.0	.3	.26	120	17.0	51	14	****	****
1330	29.9	3.1	27.31	32.9	80.9	120	7	6.0	.5	.15	240	18.0	48	15	****	****
1000	28.8	41.1	30.40	28.8	69.4	115	3	11.0	*****	*****	***	33.0	157	4	****	****
930	28.8	3.2	29.43	29.0	80.3	****	****	9.0	1.0	.74	90	36.0	156	5	****	****

Table 3.

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MISSISSIPPI SOUND &
FIELD AND LABORATORY MEASUREMENTS

AT MB	TIME CDT	WATER TEMP DEG C	CHLO PH A MG/M3	SALNTY PTS/K	AIR TEMP DG C	RELAT HUMDY PERCT	WIND DIR DEG	WIND SPD KN	SECH VISB FT	SEA STAT FT	CURRT KN	CUR DIR DEG	WATER DEPTH FT	BOTL NO.	FIL COL	PRT-5 TEMP DEG C	RS5-3 SAL
5	900	28.4	0.0	31.64	28.9	76.6	90	1	10.5	.5	*****	***	19.0	155	12	****	****
6	1300	29.5	4.2	27.78	32.9	80.9	130	7	6.0	.5	.19	270	18.0	56	14	****	****
7	1230	29.4	8.9	28.14	32.0	80.7	100	7	5.0	.5	*****	***	13.0	54	15	****	****
8	1200	29.8	8.4	28.32	32.7	77.5	90	5	2.5	.4	.19	240	13.0	49	16	****	****
9	1400	30.5	3.3	30.15	34.9	74.5	120	2	7.5	*****	*****	***	11.0	153	10	****	****
0	1330	30.5	1.6	28.09	33.5	67.9	122	2	6.5	*****	*****	***	14.0	152	10	****	****
	900	28.6	5.0	29.02	29.2	83.5	60	30	3.5	.5	.13	170	9.0	59	16	****	****
	936	28.5	4.5	29.78	29.3	91.6	60	3	4.0	.5	.08	170	14.0	60	15	****	****
	1005	28.5	4.0	30.59	30.5	87.8	70	3	3.5	1.0	.10	200	18.0	61	15	****	****
	1030	29.0	3.1	29.79	28.7	76.8	115	2	9.5	*****	*****	***	32.0	158	6	****	****
	1103	29.0	15.5	29.90	29.4	76.8	115	4	10.5	1.0	*****	***	37.0	159	5	****	****
	1130	29.0	7.8	30.62	28.7	80.3	115	4	6.0	1.5	*****	***	29.0	160	7	****	****
	1030	28.8	6.3	29.53	30.5	87.6	90	3	4.0	1.0	.09	140	14.0	62	15	****	****
	1330	29.4	5.0	29.82	32.0	73.5	115	3	4.0	.5	*****	***	12.0	68	15	****	****
	1100	29.0	4.7	29.60	32.3	80.5	90	3	3.5	1.0	.21	80	14.0	63	15	****	****
	1400	29.9	11.7	30.37	33.0	73.8	170	3	3.5	.5	*****	***	14.0	69	16	****	****

Table 3.

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MISSISSIPPI SOUND 8

FIELD AND LABORATORY MEASUREMENTS

AT MB	TIME CDT	WATER TEMP DEG C	CHLO PH A MG/M3	SALNTY PTS/K	AIR TEMP DG C	RELAT HUMDY PERCT	WIND DIR DEG	WIND SPD KN	SECH VISB FT	SEA STAT FT	CURRT KN	CUR DIR DEG	WATER DEPTH FT	BOTL NO.	FU COL	PRT-5 TEMP DEG C	RS5-3 SAL
	1130	29.2	15.0	30.05	31.5	87.6	90	3	3.0	.5	.25	90	8.0	64	16	****	****
	1430	29.7	8.1	29.86	33.0	73.5	170	3	3.5	.5	*****	***	8.0	70	16	****	****
0	1200	29.1	8.4	33.89	29.7	83.9	140	3	3.5	.5	.13	260	8.0	65	17	****	****
1	1230	29.4	7.4	30.63	30.4	80.3	140	3	3.0	.5	.15	215	11.0	66	15	****	****
2	1300	29.1	8.0	31.04	31.0	77.0	115	3	5.0	.5	.17	80	8.0	67	15	****	****
3	1305	28.4	5.3	30.21	29.3	76.8	120	4	9.5	2.5	*****	***	44.0	163	4	****	****
4	1225	28.9	5.2	30.84	28.7	80.3	115	8	12.0	2.5	*****	***	41.0	162	5	****	****
5	1155	28.8	5.2	31.52	28.4	83.9	115	8	6.0	1.5	*****	***	30.0	161	8	****	****
6	1000	28.7	0.0	34.62	29.0	80.3	90	8	3.0	.8	.81	220	35.0	76	16	****	****
7	930	28.2	10.1	29.52	30.5	80.0	70	5	3.0	.5	.40	230	10.0	75	17	****	****
8	900	28.8	3.8	28.40	28.1	76.8	30	4	2.0	.4	.49	178	6.0	82	19	****	****
9	1130	29.3	4.8	27.30	29.7	70.3	120	3	4.5	.5	.63	290	6.0	79	16	****	****
9	1430	30.0	5.5	27.82	30.0	67.3	160	2	4.0	.5	.56	320	6.0	74	16	****	****
0	1100	29.0	0.6	30.73	29.4	73.5	105	4	4.5	.5	.79	270	13.0	78	16	****	****
0	1400	29.8	4.4	32.26	30.8	67.3	160	1	4.0	.5	.74	320	15.0	73	16	****	****
1	1030	29.1	4.0	33.94	29.5	80.3	90	3	10.0	.8	.47	270	12.0	77	16	****	****

Table 3.

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MISSISSIPPI SOUND 8

FIELD AND LABORATORY MEASUREMENTS

TAT UMB	TIME CDT	WATER TEMP DEG C	CHLO PH A MG/M3	SALNTY PTS/K	AIR TEMP DG C	RELAT HUMDY PERCT	WIND DIR DEG	WIND SPD KN	SECH VISB FT	SEA STAT FT	CURRT KN	CUR DIR DEG	WATER DEPTH FT	BOTL NO.	FU COL	PRT-5 TEMP DEG C	RS5-3 SAL
21	1330	29.8	2.7	31.66	29.8	61.6	150	2	6.0	.5	.37	340	15.0	72	14	****	****
22	1000	27.5	4.7	30.74	29.0	76.8	45	8	13.0	1.0	*****	***	58.0	169	**	****	****
23	930	28.5	12.9	31.72	29.0	76.8	45	8	14.0	1.0	.19	185	53.0	168	**	****	****
24	900	27.5	3.0	31.33	28.9	84.0	45	8	13.5	1.0	*****	***	30.5	167	**	****	****
25	1300	29.5	4.1	31.58	30.5	70.3	130	2	6.5	.8	.40	310	14.0	71	12	****	****
26	1230	29.6	6.9	23.13	28.5	73.8	120	2	3.0	.5	.52	270	12.0	81	16	****	****
27	1200	29.6	9.3	27.77	30.3	70.6	120	2	3.5	.5	.62	260	7.0	80	16	****	****
28	1440	29.0	9.1	31.74	29.7	70.0	150	2	5.0	*****	*****	***	20.0	166	12	****	****
29	1415	29.7	4.1	32.18	29.8	73.2	150	1	7.0	.5	*****	***	36.0	165	8	****	****
30	1330	29.7	5.0	29.77	29.7	76.8	115	8	9.5	2.5	*****	***	42.0	164	5	****	****
1	856	28.5	14.9	26.90	26.3	83.7	70	7	3.5	.6	.37	220	7.0	83	21	****	****
	1135	30.1	10.7	29.33	32.3	53.6	130	4	3.0	.5	.37	270	7.0	88	21	****	****
	922	28.2	6.2	29.50	28.8	80.0	70	7	9.5	.1	.49	220	15.0	84	14	****	****
	1210	29.2	4.9	30.65	29.9	70.6	135	1	4.5	.5	.16	300	15.0	87	16	****	****
2	955	28.7	3.9	31.68	29.3	76.6	70	7	7.5	1.0	.15	240	18.0	86	12	****	****
	1240	29.2	4.3	31.76	32.5	51.2	150	3	8.0	.5	.37	270	17.0	92	16	****	****

Table 3.

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MISSISSIPPI SOUND 8

FIELD AND LABORATORY MEASUREMENTS

TIME CDT	WATER TEMP DEG C	CHLO PH A MG/M3	SALNTY PTS/K	AIR TEMP DG C	RELAT HUMDY PERCT	WIND DIR DEG	WIND SPD KN	SECH VISB FT	SEA STAT FT	CURRT KN	CUR DIR DEG	WATER DEPTH FT	BOTL NO.	FU COL	PRT-5 TEMP DEG C	RS5-3 SAL
1030	27.6	3.3	30.94	29.1	76.6	45	5	16.0	.5	*****	***	58.0	170	**	****	****
1100	28.0	3.3	31.18	29.5	76.6	45	5	16.0	.5	*****	***	46.0	171	**	****	****
1115	28.5	2.8	32.98	29.5	76.6	45	5	20.0	.5	*****	***	35.5	172	**	****	****
1036	28.7	2.9	31.77	28.9	73.5	70	8	10.5	1.0	.19	270	15.0	90	17	****	****
1305	29.6	3.8	33.73	34.3	52.1	150	4	8.5	.5	.25	300	15.0	91	17	****	****
1056	28.9	3.5	31.76	29.0	59.0	90	8	6.5	1.0	.19	270	12.0	89	14	****	****
1340	29.8	3.9	31.80	30.3	51.2	150	4	5.0	.5	.37	330	14.0	94	14	****	****
1120	29.3	17.6	23.24	30.3	67.6	130	3	3.5	.5	.25	240	4.0	85	18	****	****
1400	30.3	24.3	21.26	35.0	64.7	150	7	3.0	.5	.37	300	4.0	93	18	****	****
900	28.4	12.1	29.49	28.9	76.6	210	4	1.5	.5	.19	210	5.8	97	17	****	****
930	28.8	5.1	30.81	29.0	76.8	225	6	3.5	.8	.07	225	6.0	95	16	****	****
1000	28.3	4.2	31.52	30.0	84.0	200	8	5.5	1.5	.09	25	15.0	102	14	****	****
1215	28.5	4.9	31.85	29.5	76.6	45	5	16.0	.5	*****	***	64.0	175	**	****	****
1200	28.0	7.8	32.33	29.5	76.6	45	5	16.0	.5	*****	***	46.0	174	**	****	****
1130	28.0	15.9	30.98	29.7	80.3	45	5	8.0	.5	*****	***	26.0	173	**	****	****
940	28.7	5.8	27.82	27.3	80.3	60	9	3.5	.6	.36	240	8.0	107	14	****	****

Table 3.

28 September 1972

MISSISSIPPI SOUND 8

FIELD AND LABORATORY MEASUREMENTS

AT -5	TIME CDT	WATER TEMP DEG C	CHLO PH A MG/M3	SALNTY PTS/K	AIR TEMP DG C	RELAT HUMDY PERCT	WIND DIR DEG	WIND SPD KN	SECH VISB FT	SEA STAT FT	CURRT KN	CUR DIR DEG	WATER DEPTH FT	BOTL NO.	FU COL	PRT-5 TEMP DEG C	RS5-3 SAL
9	1000	****	*****	******	****	*****	****	****	****	*****	*****	***	*****		**	****	27.7
9	1245	30.0	4.7	31.00	29.2	76.8	125	5	3.5	*****	.49	330	6.0	113	14	****	****
9	1250	****	*****	******	****	*****	****	****	****	*****	*****	***	*****		**	****	28.9
0	1035	28.9	6.9	28.87	28.7	87.6	60	9	3.5	.6	.37	235	17.0	108	14	****	28.8
0	1310	29.7	5.3	31.54	29.9	76.8	135	4	4.5	*****	.81	270	17.0	114	14	****	****
0	1313	****	*****	******	****	*****	****	****	****	*****	*****	***	*****		**	****	29.3
1	1105	29.0	3.4	33.84	28.9	80.3	60	9	4.5	.8	.37	235	13.0	109	12	****	****
1	1110	****	*****	******	****	*****	****	****	****	*****	*****	***	*****		**	****	31.8
1	1350	29.3	1.8	33.93	29.5	73.2	180	4	6.0	*****	.37	***	15.0	115	14	****	****
1	1340	****	*****	******	****	*****	****	****	****	*****	*****	***	*****		**	****	29.3
2	1040	28.6	1.6	32.62	29.2	80.3	90	4	17.5	1.0	*****	***	66.0	182	10	****	****
2	1045	****	*****	******	****	*****	****	****	****	*****	*****	***	*****		**	28.3	33.4
3	1000	28.8	2.9	32.53	29.2	80.3	90	5	13.0	1.0	.30	270	58.0	180	12	****	****
5	1010	****	*****	******	****	*****	****	****	****	*****	*****	***	*****		**	28.3	33.6
4	925	29.0	38.1	35.80	30.8	87.6	60	6	6.0	1.0	*****	***	25.0	179	18	****	****
-	930	****	*****	******	****	*****	****	****	****	*****	*****	***	*****		**	28.3	33.2

Table 3.

28 September 1972

MISSISSIPPI SOUND &
FIELD AND LABORATORY MEASUREMENTS

AT MB	TIME CST	WATER TEMP DEG C	CHLO PH A MG/M3	SALNTY PTS/K	AIR TEMP DG C	RELAT HUMDY PERCT	WIND DIR DEG	WIND SPD KN	SECH VISB FT	SEA STAT FT	CURRT KN	CUR DIR DEG	WATER DEPTH FT	BOTL NO.	FU COL	PRT-5 TEMP DEG C	RS5-3 SAL
5	1130	29.4	2.4	33.65	30.0	76.8	60	5	6.0	.6	.49	235	7.0	110	12	****	****
5	1135	****	*****	******	****	*****	****	****	****	*****	*****	***	*****		**	****	32.2
5	1400	30.0	1.5	34.05	29.6	76.8	180	4	9.5	*****	.59	***	8.0	116	12	****	32.2
6	1155	29.2	1.7	28.64	29.4	76.8	90	5	9.5	*****	.49	270	16.0	111	14	****	****
6	1200	****	*****	******	****	*****	****	****	****	*****	*****	***	*****		**	****	28.6
6	1430	29.6	2.3	28.50	30.7	73.2	180	5	10.0	*****	.74	270	17.0	117	14	****	28.3
7	1220	29.5	3.6	27.96	29.6	80.3	90	3	3.5	*****	.49	270	10.2	112	15	****	****
7	1225	****	*****	******	****	*****	****	****	****	*****	*****	***	*****		**	****	28.6
7	1445	29.9	2.9	28.01	30.5	70.0	180	6	5.5	*****	.74	270	11.0	118	14	****	27.8
8	1300	28.5	3.9	33.20	29.5	76.6	45	5	16.0	.5	*****	***	37.0	178	**	****	****
9	1245	29.0	2.0	34.74	29.6	76.6	45	5	18.0	.5	*****	***	44.0	177	**	****	****
0	1230	28.5	2.6	34.35	29.8	76.6	45	5	20.0	.5	*****	***	62.0	176	**	****	****
	930	28.4	1.6	28.00	31.4	70.0	72	7	4.5	.8	.31	210	10.5	129	15	****	****
	1000	28.7	2.8	28.43	30.7	70.0	88	6	7.0	.5	.44	88	12.0	119	12	****	****
9	1030	29.0	1.7	35.53	30.5	76.6	52	6	6.5	.5	.19	260	10.0	124	12	****	****
	1120	29.0	1.5	32.45	30.8	80.3	60	4	28.0	1.0	*****	***	62.0	181	10	28.4	33.6

Table 3.

28 September 1972

MISSISSIPPI SOUND 8

FIELD AND LABORATORY MEASUREMENTS

AT NB	TIME CDT	WATER TEMP DEG C	CHLO PH A MG/M3	SALNTY PTS/K	AIR TEMP DG C	RELAT HUMDY PERCT	WIND DIR DEG	WIND SPD KN	SECH VISB FT	SEA STAT FT	CURRT KN	CUR DIR DEG	WATER DEPTH FT	BOTL NO.	FU COL	PRT-5 TEMP DEG C	RS5-3 SAL
	1200	29.5	2.1	34.63	33.9	60.3	60	4	9.0	.5	*****	***	52.0	183	12	28.4	33.7
	1230	29.8	3.0	32.49	33.5	76.8	60	4	8.0	.5	*****	***	22.0	184	16	28.4	32.4
	1100	28.9	4.7	32.66	30.3	76.6	100	3	5.0	2.0	.44	180	8.0	127	16	****	****
	1345	29.6	2.3	31.24	30.7	73.5	160	2	7.5	1.0	.23	340	8.0	121	12	****	****
	1130	29.0	2.6	29.42	29.5	73.5	75	3	7.0	.5	.39	253	16.0	123	12	****	****
	1410	30.0	2.9	29.89	29.5	67.0	150	3	6.5	.2	.39	330	16.0	120	14	****	****
	1200	28.9	3.5	26.27	29.5	70.0	90	2	6.0	.2	.42	130	14.0	130	15	****	****
	1445	29.5	3.5	26.97	26.9	67.0	165	6	5.5	.5	.20	250	13.0	122	15	****	****
0	1230	29.2	3.9	30.00	30.2	63.7	80	2	5.0	.1	.25	315	12.0	128	14	****	****
1	1248	29.9	3.6	30.01	30.0	70.0	****	****	5.5	.1	.39	300	16.0	126	14	****	****
2	1315	29.9	2.9	31.51	30.0	66.6	****	****	5.0	.1	.19	315	18.0	125	14	****	****
3	1400	29.9	2.8	33.09	30.0	76.8	60	4	50.0	.5	*****	***	65.0	187	6	29.1	34.4
4	1330	30.0	2.0	34.71	30.5	76.8	60	4	25.0	.5	.22	60	65.0	186	8	29.2	34.5
5	1300	29.6	3.0	32.74	31.6	73.2	60	4	6.5	.5	*****	***	42.0	185	12	28.6	32.9
6	1251	30.3	2.9	31.59	29.3	72.9	110	1	4.0	*****	.49	310	13.0	138	12	****	****
7	1227	30.3	3.5	25.99	29.0	72.7	160	1	4.0	*****	.44	315	12.0	137	14	****	****

Table 3.

28 September 1972

MISSISSIPPI SOUND 8

FIELD AND LABORATORY MEASUREMENTS

AT FB	TIME CDT	WATER TEMP DEG C	CHLO PH A MG/M3	SALNTY PTS/K	AIR TEMP DG C	RELAT HUMDY PERCT	WIND DIR DEG	WIND SPD KN	SECH VISB FT	SEA STAT FT	CURRT KN	CUR DIR DEG	WATER DEPTH FT	BOTL NO.	FU COL	PRT-5 TEMP DEG C	RS5-3 SAL
8	1200	29.4	4.5	28.92	29.1	76.3	165	2	3.5	*****	.36	300	6.0	136	14	****	****
9	1132	29.4	4.2	27.24	28.8	76.3	155	3	3.5	.5	.18	280	7.0	135	14	****	****
9	1424	30.8	4.5	26.61	29.3	69.7	175	7	3.0	.5	.52	180	7.0	141	14	****	****
0	1104	29.4	3.4	29.87	27.9	72.7	100	2	3.5	.5	.89	280	11.0	134	14	****	****
0	1350	30.9	2.5	29.16	30.2	72.9	190	4	5.0	*****	.22	250	10.0	140	14	****	****
1	1035	28.7	3.1	33.75	28.2	79.8	90	5	3.0	.5	.37	265	12.0	133	15	****	****
1	1331	29.7	4.2	32.24	28.8	72.9	180	2	3.0	*****	.21	270	7.0	139	12	****	****
2	1545	29.8	4.5	33.97	32.4	76.8	60	2	6.0	1.0	*****	***	18.0	190	16	28.8	32.8
3	1500	29.9	.6	34.42	32.3	75.5	60	2	40.0	.5	*****	***	60.0	189	10	28.5	33.1
4	1531	30.0	3.1	28.02	29.4	69.4	170	4	3.5	.5	.59	345	12.0	142	12	****	****
4	1013	28.7	3.2	32.65	28.0	83.5	135	5	3.0	.5	.56	280	12.0	132	16	****	****
5	942	28.9	4.1	24.03	27.2	76.1	30	4	3.0	.5	.59	245	9.0	131	16	****	****
7	1435	30.1	1.0	32.76	31.7	80.5	60	4	30.0	.5	*****	***	66.0	188	8	****	****
7	1437	****	*****	******	****	*****	****	****	****	*****	*****	***	*****		**	29.1	34.1
	930	29.1	13.5	8.95	28.6	83.5	68	1	2.5	.5	.19	235	9.0	209	17	****	8.3
	1010	29.2	13.9	10.82	28.5	76.6	90	1	2.0	.5	.28	235	5.0	212	19	****	9.8

Table 3.

28 September 1972

MISSISSIPPI SOUND 8

FIELD AND LABORATORY MEASUREMENTS

STAT NMB	TIME CDT	WATER TEMP DEG C	CHLO PH A MG/M3	SALNTY PTS/K	AIR TEMP DG C	RELAT HUMDY PERCT	WIND DIR DEG	WIND SPD KN	SECH VISB FT	SEA STAT FT	CURRT KN	CUR DIR DEG	WATER DEPTH FT	BOTL NO.	FU COL	PRT-5 TEMP DEG	PS5-3 SAL
3	1040	29.2	15.3	13.08	28.7	76.6	90	1	2.5	.5	.25	235	5.5	214	19	****	11.3
4	1100	29.0	9.6	17.09	28.3	76.6	****	****	3.5	.5	.23	235	4.5	213	19	****	12.4
5	1230	30.4	5.3	14.52	30.5	*****	****	****	4.0	*****	.33	180	12.0	207	15	****	13.8
6	1250	30.3	16.9	13.86	28.5	*****	****	****	3.5	.5	.26	235	7.0	203	15	****	13.1
7	1310	30.4	*****	7.66	29.7	*****	****	1	3.0	*****	.28	235	12.0	206	17	****	7.2
8	1330	30.4	14.0	5.86	29.2	*****	90	1	3.0	.5	.13	180	10.5	208	17	****	5.3
9	1355	30.3	12.1	2.79	28.4	*****	90	2	2.5	.5	.13	180	7.0	211	17	****	2.2
10	1350	31.0	3.4	17.27	30.1	56.9	140	3	5.0	*****	.34	222	11.8	198	**	****	17.7
11	1422	31.0	3.1	19.35	31.7	67.0	140	5	5.0	.5	.33	280	11.3	199	**	****	21.0
12	828	28.7	6.6	27.45	27.6	100.0	45	8	3.5	1.5	.10	198	12.3	191	**	****	26.5
12	1110	29.1	4.7	26.74	28.8	70.0	118	5	3.5	.5	.99	198	10.0	194	**	****	24.2
12	1505	30.5	3.2	29.92	31.6	63.7	150	5	5.5	.8	.29	240	11.5	200	**	****	22.2
13	912	28.7	2.9	30.87	28.0	80.0	45	2	4.5	3.0	.10	203	18.5	192	**	****	30.0
14	1003	29.5	1.9	33.95	29.6	66.6	70	1	22.5	.8	*****	***	45.0	193	**	****	32.4
15	1200	30.1	5.5	23.75	29.9	60.1	20	4	3.5	*****	.47	262	11.0	195	**	****	22.2
16	1226	30.8	2.6	18.98	30.5	56.9	****	****	6.0	*****	.56	256	10.5	196	**	****	18.8
	1300	30.8	4.0	19.26	31.4	56.9	290	2	5.0	******	.37	192	10.5	197	**	****	16.8

Table 4.

Night line

MISSISSIPPI SOUND P

FIELD AND LABORATORY MEASUREMENTS

T B	TIME CDT	WATER TEMP DEG C	CHLO PH A MG/M3	SALNTY PTS/K	AIR TEMP DG C	RELAT HUMDY PERCT	WIND DIR DEG	WIND SPD KN	SECH VISB FT	SEA STAT FT	CURRT KN	CUR DIR DEG	WATER DEPTH FT	ROTL NO.	FU COL	PRT-5 TEMP DEG C	RS5-3 SAL
	1955	28.9	*****	******	****	*****	****	****	****	*****	*****	***	*****		**	****	****
	2000	28.7	*****	******	****	*****	****	****	****	*****	*****	***	*****		**	****	****
	2004	28.8	*****	******	****	*****	****	****	****	*****	*****	***	*****		**	****	****
	2008	28.6	*****	******	****	*****	****	****	****	*****	*****	***	*****		**	****	****
	2011	28.6	*****	******	****	*****	****	****	****	*****	*****	***	*****		**	****	****
	2014	28.7	*****	******	****	*****	****	****	****	*****	*****	***	*****		**	****	****
	2017	29.5	*****	******	****	*****	****	****	****	*****	*****	***	*****		**	****	****
	2020	28.7	*****	******	****	*****	****	****	****	*****	*****	***	*****		**	****	****
	2024	28.8	*****	******	****	*****	****	****	****	*****	*****	***	*****		**	****	****
	2026	29.0	*****	******	****	*****	****	****	****	*****	*****	***	*****		**	****	****
	2029	29.2	*****	******	****	*****	****	****	****	*****	*****	***	*****		**	****	****
	2031	29.2	*****	******	****	*****	****	****	****	*****	*****	***	*****		**	****	****
	2034	29.2	*****	******	****	*****	****	****	****	*****	*****	***	*****		**	****	****
	2037	28.8	*****	******	****	*****	****	****	****	*****	*****	***	*****		**	****	****
	2040	28.6	*****	******	****	*****	****	****	****	*****	*****	***	*****		**	****	****

Table 4.

Night line

MISSISSIPPI SOUND 8

FIELD AND LABORATORY MEASUREMENTS

T B	TIME CDT	WATER TEMP DEG C	CHLO PH A MG/M3	SALNTY PTS/K	AIR TEMP DG C	RELAT HUMDY PERCT	WIND DIR DEG	WIND SPD KN	SECH VISB FT	SEA STAT FT	CURRT KN	CUR DIR DEG	WATER DEPTH FT	BOTL NO.	FU COL	PRT-5 TEMP DEG C	RS5-3 SAL
	2043	28.7	******	******	****	*****	****	****	****	*****	*****	***	*****		**	****	****
	2046	28.7	******	******	****	*****	****	****	****	*****	*****	***	*****		**	****	****
	2049	28.7	******	******	****	*****	****	****	****	*****	*****	***	*****		**	** *	****
	2053	28.5	******	******	****	*****	****	****	****	*****	*****	***	*****		**	****	****
	2056	28.5	******	******	****	*****	****	****	****	*****	*****	***	*****		**	****	****
	2059	28.7	******	******	****	*****	****	****	****	*****	*****	***	*****		**	****	****
	2104	28.7	******	******	****	*****	****	****	****	*****	*****	***	*****		**	****	****
	2109	28.8	******	******	****	*****	****	****	****	*****	*****	***	*****		**	****	****
	2112	28.9	******	******	****	*****	****	****	****	*****	*****	***	*****		**	****	****
	2117	28.8	******	******	****	*****	****	****	****	*****	*****	***	*****		**	****	****
	2123	28.8	******	******	****	*****	****	****	****	*****	*****	***	*****		**	****	****

APPENDIX I

Mississippi Sound remote sensing study publications.

1. Sea Remote Sensing Program, Mississippi Sound Remote Sensing Study, July 22, 1971, Surface Measurements.

2. Mississippi Sound Study, Part I Surface Measurements from Experiment II, November 10, 1971.

3. Sea Remote Sensing Program, Mississippi Sound Remote Sensing Study, January 26, 1972, Report #010, Surface Measurements.

4. Sea Remote Sensing Program, Mississippi Sound Remote Sensing Study May 2 & 4, 1972, Report #015, Surface Measurements.

5. Sea Remote Sensing Program, Mississippi Sound Remote Sensing Study July 6, 1972, Report #021, Surface Measurements.

6. Sea Remote Sensing Program, Mississippi Sound Remote Sensing Study July 6, 1972, Report #022, Remote Measurements Light-Aircraft.

7. Sea Remote Sensing Program, Mississippi Sound Remote Sensing Study July 11, 19, 25, and August 1, 1972, Report #023, Surface Measurements.

8. Atwell, B. H. and G. C. Thomann. Mississippi Sound Remote Sensing Study, NASA 4th. Annual Earth Resources Program Review, January 1972.

9. Sea Remote Sensing Program, Mississippi Sound Remote Sensing Study, August 7, 1972, Report #025 Surface Measurements.

10. Sea Remote Sensing Program, Mississippi Sound Remote Sensing Study, August 25, 1972, Report #032, Surface Measurements.

11. Sea Remote Sensing Program, Mississippi Sound Remote Sensing Study, August 15, August 29, and September 7, 1972, Report #033, Surface Measurements.

APPENDIX II

Description of precision radiation thermometer (PRT-5).

esign Features

- o thermistor bolometer detector
- o heated internal reference cavity (maintained at 55°C)
- o scales available - equivalent temperature

  -20° to +15°C
  +10° to +45°C
  +40° to +75°C

pectral Characteristics

- o single bandpass filter (8 to 14 microns)

patial Characteristics

- o 2° field of view (35 mil rad)

  35 ft. at 1000-ft. altitude

  350 ft. at 10,000-ft. altitude

esponse (Time Constant)

- o 0.3 Hz (500 milliseconds)
- o 3.0 Hz (50 milliseconds)
- o 30.0 Hz (5 milliseconds)

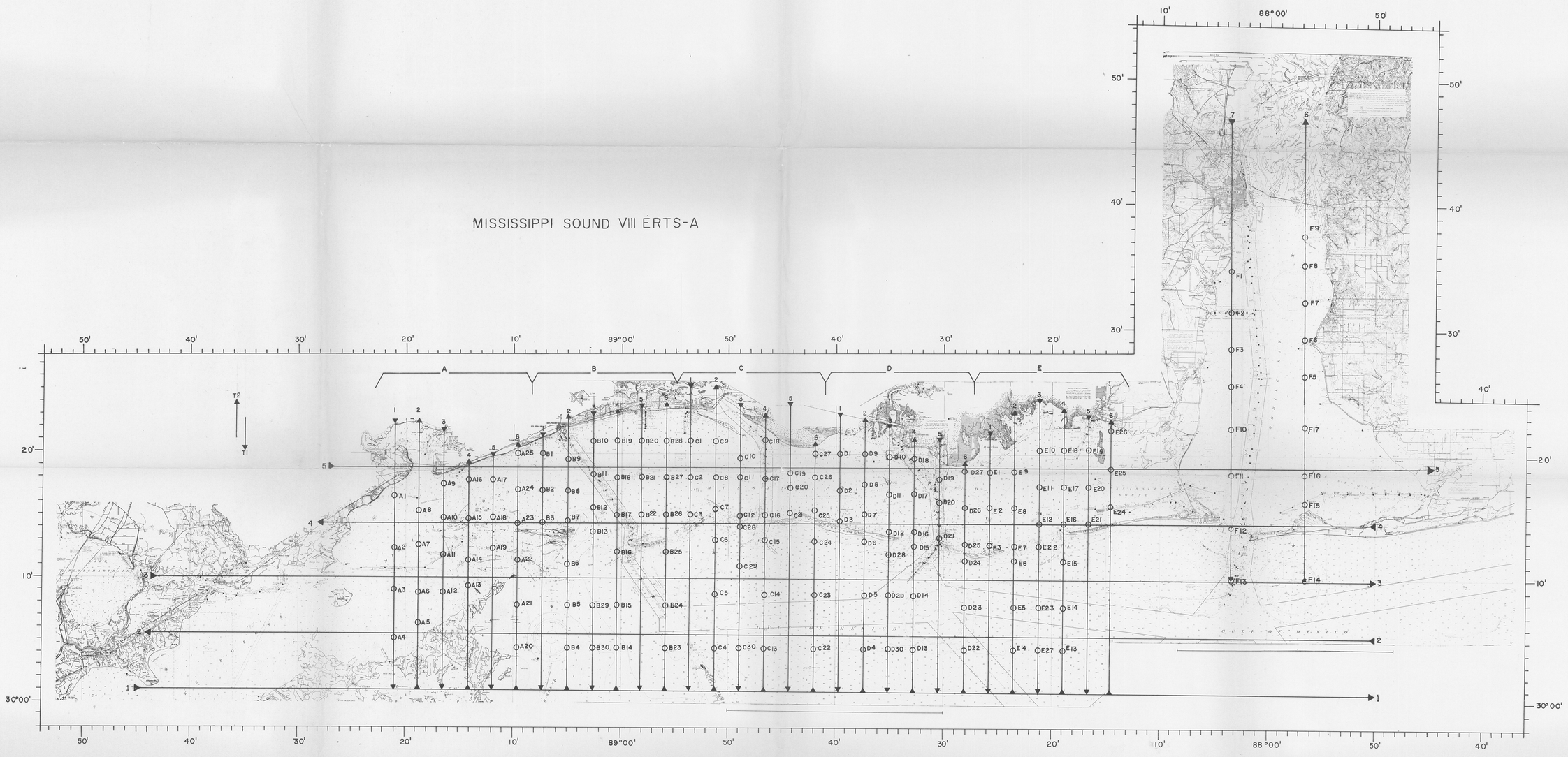
ata Characteristics

- o 0 to 1-V analog output
- o 0- to 5-V analog recorded on magnetic tape(with post amplifier)
- o display of equivalent blackbody temperature on instrument dial

Operator Participation

- o selects scale factor for visual display
- o records output and scale changes on log
- o selects electronics bandwidth

MISSISSIPPI SOUND VIII ERTS-A



LEGEND

LINES 1 THRU 7: NP3A 20,000'
SECTIONS A THRU E: NP3A 800'
SECTIONS A THRU E: TWIN BEECH 10,000'

MISSISSIPPI SOUND VIII

ERTS-A

SALINITY CONCENTRATION

September, 28 1972

SCALE 1:250,000

5 0 5 10 15

NAUTICAL MILES

N

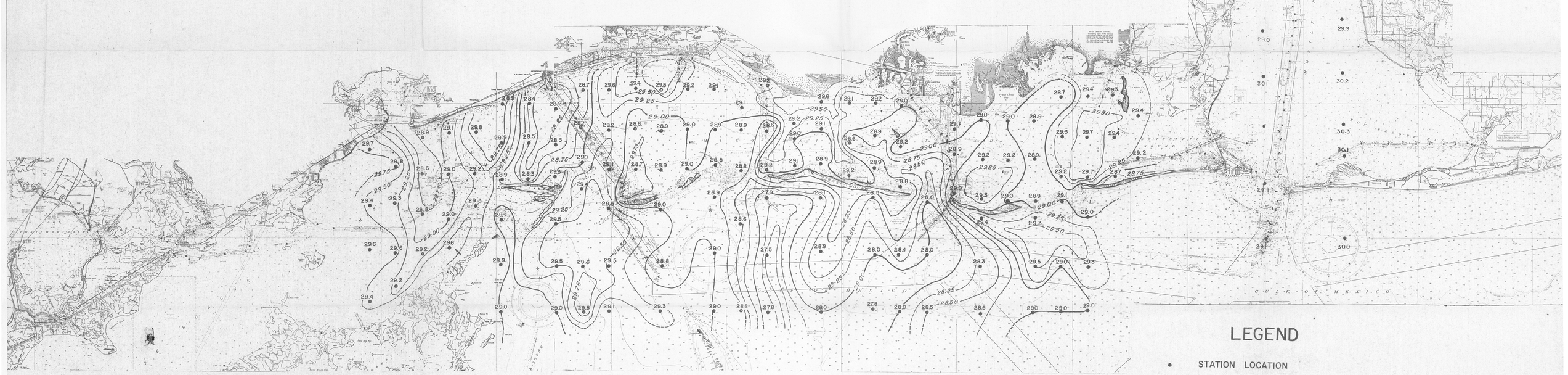
LEGEND

- • STATION LOCATION
- 32.2 CONCENTRATION AT STATION ‰
- —30— CONTOUR INTERVAL 1‰

MISSISSIPPI SOUND VIII
ERTS-A

SURFACE TEMPERATURE

September, 28 1972



SCALE 1:250,000

5 0 5 10 15

NAUTICAL MILES

N

LEGEND

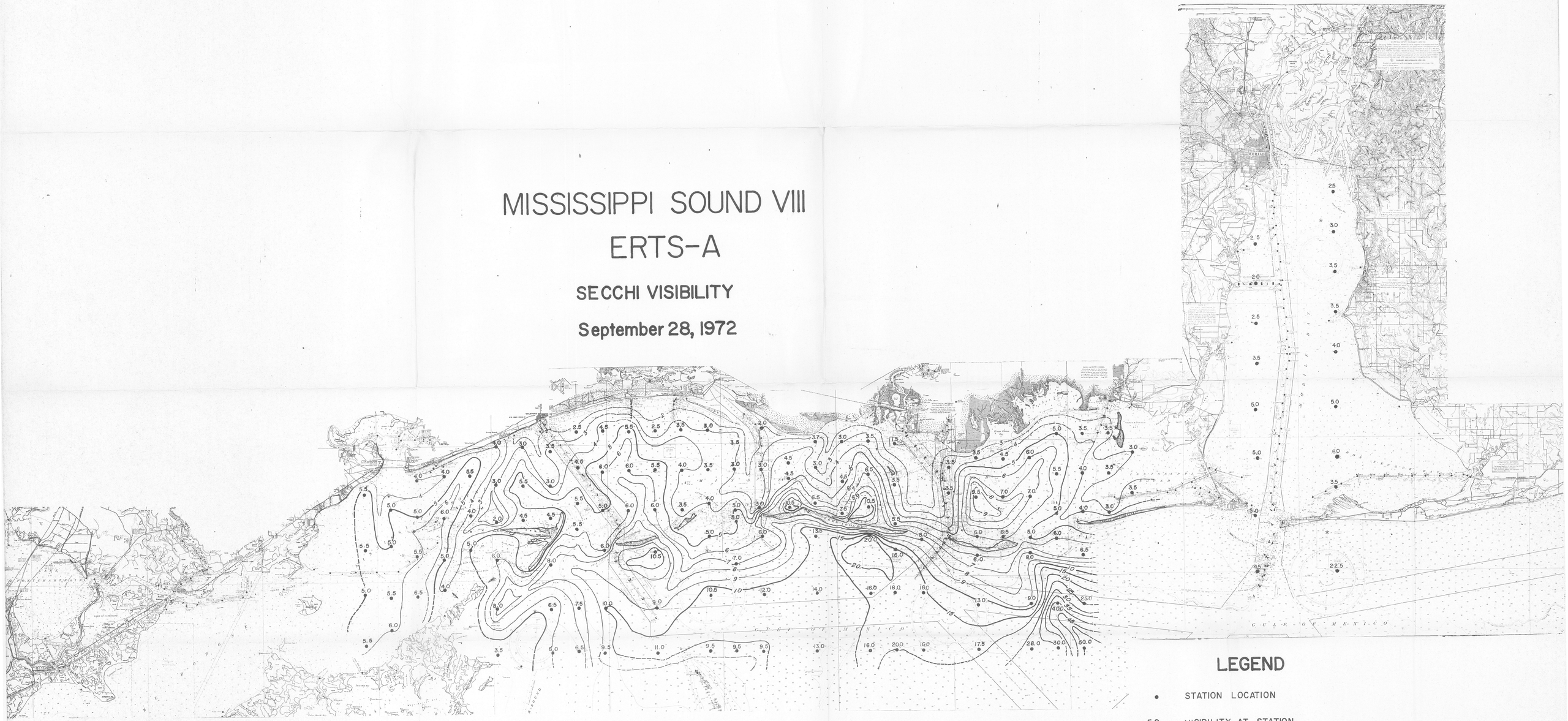
- • STATION LOCATION
- 29.1 TEMPERATURE AT STATION
- 29.50 CONTOUR INTERVAL 0.25° C.
  (TEMPERATURE VALUES AT 1100 CDT)

MISSISSIPPI SOUND VIII

ERTS-A

SECCHI VISIBILITY

September 28, 1972



SCALE 1:250,000

5 0 5 10 15

NAUTICAL MILES

N

LEGEND

- • STATION LOCATION
- 5.2 VISIBILITY AT STATION
- —7— CONTOUR INTERVAL IN FEET

MISSISSIPPI SOUND VIII

ERTS-A

CHLOROPHYLL CONCENTRATION

September 28, 1972

SCALE 1:250,000

5 0 5 10 15

NAUTICAL MILES

STATION LOCATION

5.2 CONCENTRATION AT STATION mg/m^3

—5— CONTOUR INTERVAL $1 mg/m^3$

▲ DENOTES HIGH VALUES NOT CONTOURED